List of Contents

NUMBER 1

A. J. Blattner, R. Lakshminarayanan and **D. K. Shetty**	1	Toughening of layered ceramic composites with residual surface compression: effects of layer thickness
Y.-J. Kim, K. -H. Schwalbe and **R. A. Ainsworth**	9	Simplified *J*-estimations based on the Engineering Treatment Model for homogeneous and mismatched structures
T. Fett, D. Munz and **G. Thun**	29	A toughness test device with opposite roller loading
C. Han and **K. S. Kim**	39	Time-dependent crack growth in stainless steel 304 in the plasticity-dominant field
L. E. Spievak, P. A. Wawrzynek, A. R. Ingraffea and **D. G. Lewicki**	53	Simulating fatigue crack growth in spiral bevel gears
Z. M. Xiao and **H. Fan**	77	On the contact zone and stress singularities of a subinterface crack
M. Kotoul and **R. Urbiš**	89	On the stability of cracks with bridged kinks
S. Rahman	107	Probabilistic fracture mechanics: *J*-estimation and finite element methods
	127	Calendar
	I	Keywords

NUMBER 2

B. L. Boyce and **R. O. Ritchie**	129	Effect of load ratio and maximum stress intensity on the fatigue threshold in Ti–6Al–4V
D. K. Tran, A. S. Kobayashi and **K. W. White**	149	Crack growth in alumina at high temperature
Y.-J. Kim and **K.-H. Schwalbe**	163	Mismatch effect on plastic yield loads in idealised weldments I. Weld centre cracks
Y.-J. Kim and **K.-H. Schwalbe**	183	Mismatch effect on plastic yield loads in idealised weldments II. Heat affected zone cracks

J. M. C. Kishen and **K. D. Singh** 201 Stress intensity factors based fracture criteria for kinking and branching of interface crack: application to dams

Z. Li and **K.-H. Schwalbe** 221 Engineering treatment model for creep crack driving force estimation: CTOD in terms of δ_5

C. Bjerkén and **C. Persson** 235 A numerical method for calculating stress intensity factors for interface cracks in bimaterials

249 Calendar

I Keywords

NUMBER 3

H. Peterlik and **D. Loidl** 253 Bimodal strength distributions and flaw populations of ceramics and fibres

X. Gao and **R. H. Dodds Jr.** 263 An engineering approach to assess constraint effects on cleavage fracture toughness

X. K. Zhu and **S. K. Jang** 285 *J–R* curves corrected by load-independent constraint parameter in ductile crack growth

K. Wallin 303 Quantifying T_{stress} controlled constraint by the master curve transition temperature T_0

F. Rivalin, A. Pineau, M. Di Fant and **J. Besson** 329 Ductile tearing of pipeline-steel wide plates
I. Dynamic and quasi-static experiments

F. Rivalin, J. Besson, A. Pineau and **M. Di Fant** 347 Ductile tearing of pipeline-steel wide plates
II. Modeling of in-plane crack propagation

R. Hambli 365 Finite element model fracture prediction during sheet-metal blanking processes

379 Calendar

I Keywords

NUMBER 4

G. Dhondt, A. Chergui and **F.-G. Buchholz** 383 Computational fracture analysis of different specimens regarding 3D and mode coupling effects

W.-K. Lim, S.-Y. Choi and **B. V. Sankar** 403 Biaxial load effects on crack extension in anisotropic solids

G. La Rosa, G. Mirone and **A. Risitano** 417 Effect of stress triaxiality corrected plastic flow on ductile damage evolution in the framework of continuum damage mechanics

I. S. Jones and **G. Rothwell** 435 Reference stress intensity factors with application to weight functions for internal circumferential cracks in cylinders

Y. Fujimoto, K. Hamada, E. Shintaku and **G. Pirker** 455 Inherent damage zone model for strength evaluation of small fatigue cracks

S. Shkarayev, E. Madenci, M. Ibnabdeljalil and **M. P. Savruk** 475 Analytical stress singularities for a crack at a Bi- or triple junction of dissimilar materials with bilinear behavior

J. R. Donoso and **F. Labbe** 487 *Q*-stresses and constraint behavior of the notched cylindrical tensile specimen

497 Calendar

I Keywords

NUMBER 5

A. N. Cassanelli, H. Ortiz, R. Cocco and **L. A. de Vedia** 501 A study for η_{pl} factor determination in AA 6061T6 alloy

V. Tamuzs, S. Tarasovs and **U. Vilks** 513 Progressive delamination and fiber bridging modeling in double cantilever beam composite specimens

M. Chiesa, B. Nyhus, B. Skallerud and **C. Thaulow** 527 Efficient fracture assessment of pipelines. A constraint-corrected SENT specimen approach

L. O. Jernkvist 549 Fracture of wood under mixed mode loading
I. Derivation of fracture criteria

L. O. Jernkvist 565 Fracture of wood under mixed mode loading
II. Experimental investigation of *Picea abies*

M. Strandberg 577 Upper bounds for the notch intensity factor for some geometries and their use in general interpolation formulae

D. A. Mendelsohn, T. S. Gross, L.-J. Young, F. Chen and **R. U. Goulet** 587 Geometry and load fixture effects in the four-point-bend mixed mode fracture specimen

Technical Note
J. Helsing, A. Jonsson and **G. Peters** 605 Evaluation of the mode I stress intensity factor for a square crack in 3D

613 Calendar

I Keywords

NUMBER 6

P. Sofronis 617 Editorial

Y. Katz, N. Tymiak and **W. W. Gerberich** 619 Nanomechanical probes as new approaches to hydrogen/deformation interaction studies

J.-S. Wang 647 The thermodynamics aspects of hydrogen induced embrittlement

I. M. Robertson 671 The effect of hydrogen on dislocation dynamics

D. Delafosse and **T. Magnin** 693 Hydrogen induced plasticity in stress corrosion cracking of engineering systems

N. R. Moody, M. I. Baskes, S. L. Robinson and **M. W. Perra** 731 Temperature effects on hydrogen-induced crack growth susceptibility of iron-based superalloys

D. M. Symons 751 A comparison of internal hydrogen embrittlement and hydrogen environment embrittlement of X-750

C. J. McMahon Jr. 773 Hydrogen-induced intergranular fracture of steels

R. H. Jones, H. Li and **J. P. Hirth** 789 Effects of mixed-mode I/III loading on environment-induced cracking

A. Taha and **P. Sofronis** 803 A micromechanics approach to the study of hydrogen transport and embrittlement

839 Calendar

I Keywords

NUMBER 7

A. Vasinonta and **J. L. Beuth** 843 Measurement of interfacial toughness in thermal barrier coating systems by indentation

J. A. Joyce and **R. L. Tregoning** 861 Development of the T_0 reference temperature from precracked Charpy specimens

Y. Kim, X. K. Zhu and **Y. J. Chao** 895 Quantification of constraint on elastic–plastic 3D crack front by the J–A_2 three-term solution

R. A. Collins and **D. J. Cartwright** 915 An analytical solution for two equal-length collinear strip yield cracks

C. G. Hwang, P. A. Wawrzynek and **A. R. Ingraea** 925 On the virtual crack extension method for calculating the derivatives of energy release rates for a 3D planar crack of arbitrary shape under mode-I loading

L.-S. Niu, H.-J. Shi, C. Robin and **G. Pluvinage** 949 Elastic and elastic–plastic fields on circular rings containing a V-notch under inclined loads

J. J. M. de Rijck and **S. A. Fawaz** 963 Stress intensity factors and crack interaction in adjacent holes

971 Calendar

I Keywords

NUMBER 8

T. Meshii and **K. Watanabe** 975 Stress intensity factor for a circumferential crack in a finite-length thin to thick-walled cylinder under an arbitrary biquadratic stress distribution on the crack surfaces

M. Chiesa, B. Skallerud and **C. Thaulow** 987 Fracture analysis of strength-mismatched welded wide plates by line spring elements

B. L. Wang and **N. Noda** 1003 Transient loaded smart laminate with two piezoelectric layers bonded to an elastic layer

H. Lee and **Y.-J. Kim** 1013 Interfacial crack-tip constraints and J-integrals in plastically mismatched bi-materials

H. J. Choi 1033 Effects of graded layering on the tip behavior of a vertical crack in a substrate under frictional Hertzian contact

C. A. J. Miranda and **J. D. Landes** 1061 Defining the confidence level in the reference temperature determination for a finite set of toughness

1077 Calendar

I Keywords

NUMBER 9

J.-S. Bae and **S. Krishnaswamy** 1081 Subinterfacial cracks in bimaterial systems subjected to mechanical and thermal loading

J. G. Bakuckas Jr. 1095 Comparison of boundary correction factor solutions for two symmetric cracks in a straight-shank hole

C. Berdin, M. J. Dong and **C. Prioul** 1107 Local approach of damage and fracture toughness for nodular cast iron

T. Fett 1119 Stress intensity factors and *T*-stress for internally cracked circular disks under various boundary conditions

Y.-J. Kim and **K.-H. Schwalbe** 1137 Compendium of yield load solutions for strength mismatched DE(T), SE(B) and C(T) specimens

1153 Calendar

I Keywords

NUMBER 10

L. G. Zhao, J. Tong and **J. Byrne** 1157 Finite element simulation of creep-crack growth in a nickel base superalloy

S. L. Fok, B. C. Mitchell, J. Smart and **B. J. Marsden** 1171 A numerical study on the application of the Weibull theory to brittle materials

R. G. Pettit, C.-S. Chen, A. R. Ingraffea and **C.-Y. Hui** 1181 Process zone size effects on naturally curving cracks

T. Fett, A. Glazounov, M. J. Hoffmann, D. Munz and **G. Thun** 1207 On the interpretation of different R-curves for soft PZT

A. Neimitz 1219 A phenomenological model of the elastic–plastic CCT specimen containing a growing crack

1241 Calendar

I Keywords

NUMBER 11

M. G. A. Tijssens, L. J. Sluys and **E. van der Giessen** 1245 Simulation of fracture of cementitious composites with explicit modeling of microstructural features

K. Wallin, T. Planman, M. Valo and **R. Rintamaa** 1265 Applicability of miniature size bend specimens to determine the master curve reference temperature T_0

A. K. Agrawal and **N. N. Kishore** 1297 A study of free surface effects on through cracks using BEM

O. Y. Andreykiv, M. V. Lysak, O. M. Serhiyenko and **V. R. Skalsky** 1317 Analysis of acoustic emission caused by internal cracks

K. Y. Sze and **Y.-S. Pan** 1335 Nonlinear fracture analysis of piezoelectric ceramics by finite element method

1353 Calendar

I Keywords

NUMBER 12

D. Kujawski 1357 Correlation of long- and physically short-cracks growth in aluminum alloys

H. Kebir, J. M. Roelandt and **J. Gaudin** 1371 Monte-Carlo simulations of life expectancy using the dual boundary element method

A. Pirondi and **C. D. Donne** 1385 Characterisation of ductile mixed-mode fracture with the crack-tip displacement vector

N. K. Anifantis 1403 Crack surface interference: a finite element analysis

G. H. Paulino, R. D. Carpenter, W. W. Liang, Z. A. Munir and **J. C. Gibeling** 1417 Fracture testing and finite element modeling of pure titanium

1433 Calendar

I Keywords

NUMBER 13

R. Galatolo and **K.-F. Nilsson**	1437	An experimental and numerical analysis of residual strength of butt-joints panels with multiple site damage
M.-C. Chen and **K. Y. Sze**	1463	A novel hybrid finite element analysis of bimaterial wedge problems
E. T. Ng and **G. Qi**	1477	Material fatigue behavior characterization using the wavelet-based AE technique – a case study of acrylic bone cement
P. Shi and **S. Mahadevan**	1493	Damage tolerance approach for probabilistic pitting corrosion fatigue life prediction
	1509	Calendar
	I	Keywords

NUMBER 14

A. Loghin and **P. F. Joseph**	1511	Asymptotic solutions for mixed mode loading of cracks and wedges in power law hardening materials
P. R. Guduru, A. T. Zehnder, A. J. Rosakis and **G. Ravichandran**	1535	Dynamic full field measurements of crack tip temperatures
Y. Z. Pappas and **V. Kostopoulos**	1557	Toughness characterization and acoustic emission monitoring of a 2-D carbon/carbon composite
A. Martinelli and **S. Venzi**	1575	Dependence of J_{IC}, tearing modulus, CTOA, and total fracture energy on specimen dimension
J.-Z. Zhang, J.-Z. Zhang and **S. Yi Du**	1591	Elastic–plastic finite element analysis and experimental study of short and long fatigue crack growth
	1607	Calendar
	I	Keywords

NUMBER 15

B. L. Karihaloo and **Q. Z. Xiao**	1609	Accurate determination of the coefficients of elastic crack tip asymptotic field by a hybrid crack element with *p*-adaptivity

P. Landrein, T. Lorriot and **L. Guillaumat** 1631 Influence of some test parameters on specimen loading determination methods in instrumented Charpy impact tests

Y.-J. Guo and **Y. Jack Weitsman** 1647 A modified DCB specimen to determine mixed mode fracture toughness of adhesives

J. H. Chen, V. B. Wang, G. Z. Wang and **X. Chen** 1669 Mechanism of effects of warm prestressing on apparent toughness of precracked specimens of HSLA steels

J. Fan, D. L. McDowell, M. F. Horstemeyer and **K. Gall** 1687 Computational micromechanics analysis of cyclic crack-tip behaviour for microstructurally small cracks in dual-phase Al–Si alloys

1707 Calendar

I Keywords

NUMBER 16

N.-S. Huh, Y.-J. Kim, Y.-J. Kim, Y.-J. Yu and **C.-R. Pyo** 1709 Effect of nozzle geometry on leak-before-break analysis of pressurised piping

X. Wang and **S. B. Lambert** 1723 Semi-elliptical surface cracks in finite-thickness plates with built-in ends. I. Stress intensity factor solutions

X. Wang and **S. B. Lambert** 1743 Semi-elliptical surface cracks in finite-thickness plates with built-in ends. II. Weight function solutions

Y. Qiu, M. A. Crisfield and **G. Alfano** 1755 An interface element formulation for the simulation of delamination with buckling

R. E. Clegg 1777 A fluid flow based model to predict liquid metal induced embrittlement crack propagation rates

1791 Calendar

I Keywords

NUMBER 17–18

E. M. Schulson 1793 Editorial

D. M. Cole 1797 The microstructure of ice and its influence on mechanical properties

H. J. Frost	1823	Mechanisms of crack nucleation in ice
E. M. Schulson	1839	Brittle failure of ice
D. S. Sodhi	1889	Crushing failure during ice–structure interaction
I. J. Jordaan	1923	Mechanics of ice–structure interaction
J. P. Dempsey, A. C. Palmer and **D. S. Sodhi**	1961	High pressure zone formation during compressive ice failure
J. Weiss	1975	Fracture and fragmentation of ice: a fractal analysis of scale invariance
W. D. Hibler III	2013	Sea ice fracturing on the large scale
	2045	Calendar
	III	Contents of Volume 68
	XIII	Author Index
	XV	Keywords